

AMENDMENTS TO THE CLAIMS

Claims 1-101 (Canceled).

102. (New) A medical device comprising a bio-compatible polymeric product with a layered structure comprising:

at least one upper layer of a first polymeric component,

a middle layer of a second polymeric component, and

at least one lower layer of a third polymeric component,

wherein the chain length of the first polymeric component and the third polymeric component is longer than the chain length of the second polymeric component.

103. (New) The medical device according to claim 102, wherein at least one of the first polymeric component, the second polymeric component and the third polymeric component each is independently selected from: the group consisting of polyacrylates, polystyrene, polyethers, polytetrafluoroethylene, polyvinylalcohol, polyethylene, polypropylene, polyethylene oxides and polyvinylpyrrolidone.

104. (New) The medical device according to claim 102, wherein the first polymeric component and the third polymeric component are substantially identical.

105. (New) The medical device according to claim 102, wherein the first and third polymeric components are composed of long polymer fiber, and the second polymeric component is a short chain polymer material.

106. (New) The medical device according to claim 102, wherein the first and third polymeric components are ultra high molecule weight polyethylene (UHMWPE) fiber.

107. (New) The medical device according to claim 102, wherein said at least one upper layer of a first polymeric component and said at least one lower layer of a third polymeric component each comprises a fabric, and wherein the tensile strength of a fiber or strand of the fabric is above 1.0 GPa.

108. (New) The medical device according to claim 102, wherein the polymers of the second polymeric component are short chain polymeric material which may be optionally branched.

109. (New) The medical device according to claim 102, wherein the middle layer is selected from the group consisting of: a core, a film, an inlay and combinations thereof.

110. (New) The medical device according to claim 109 wherein the film is between 0.001 and 5 mm thick.

111. (New) The medical device according to claim 102, wherein the shape of the device is any shape which can be formed by pressing into a mold, and the overall shape of the device is selected from the group consisting of: circular, oval, squared, rectangle, cubed, bowl, cup, crown, cap, basin, hemispherical, and combinations thereof.

112. (New) The medical device according to claim 102, wherein the polymeric material is attached to a component, said component being polymeric or non-polymeric.

113. (New) The medical device according to claim 102, wherein the device is supplied with at least one feature selected from the group consisting of apertures, holes, gaps, perforations and hollows.

114. (New) The medical device according to claim 102, wherein the polymeric product is adapted to be used as a medical device for the body of a mammal.

115. (New) The medical device according to claim 102, wherein the polymeric product is adapted not to interfere with intra-articular components when the device is in the body of a human.

116. (New) The medical device according to claim 102, wherein said device is utilized to support, bear, carry, replace or displace any constitution within the human body, which comprises high shape stability and good wear resistance.

117. (New) The medical device according to claim 102, wherein the device at least partially surrounds an intra-articular component.

118. (New) The medical device according to claim 102, wherein the device is a hip endoprosthesis.

119. (New) The medical device according to claim 102, wherein the polymeric product constitutes the surface of a prosthetic device.

120. (New) The medical device according to claim 102, wherein the device is a cartilage substitute.

121. (New) The medical device according to claim 102, wherein the device is a breast prosthesis.

122. (New) The medical device according to claim 102, wherein the device is a stent.

123. (New) The medical device according to claim 102, wherein the device is a catheter.

124. (New) The medical device according to claim 102, wherein the device is a heart valve.

125. (New) A method for producing a bio-compatible medical device of a polymeric product, said method comprising:

providing at least three polymer layers, comprising:

at least one upper layer of a first polymeric component,
a middle layer of a second polymeric component, and
at least one lower layer of a third polymeric component,

wherein the chain length of at least one of the at least one first polymeric component and
at least one of the at least one third polymeric component is longer than the chain length of the
second polymeric component, and

positioning said polymer layers in a sandwich composition, and

shaping the sandwich composition of polymer layers by heating said composition
followed by pressing it into a mold, where the heating and pressing processes are conducted in a
vacuum, so as to provide the polymeric product in a desired shape.

126. (New) The method according to claim 125, wherein the at least three polymer
layers constitute a member which is a core or a film or an inlay, said member having at least one
layer of fabric on each side.

127. (New) The method according to claim 126, wherein the member differs in
constitution from the fabrics.

128. (New) The method according to claim 126, wherein different layers of fabrics
have equal constitutions.

129. (New) The method according to claim 125, wherein the polymer layers are
composed of a polymer selected from the group consisting of: polyacrylates, polystyrene,

polyethers, polytetrafluorethylene, polyvinylalcohol, polyethylene, polypropylene, polyethylene oxides, polyvinylpyrrolidone, and combinations thereof.

130. (New) The method according to claim 125, wherein the polymer layers are composed of a polymer selected from the group consisting of: polyethylene (PE), polypropylene (PP), polyvinylpyrrolidone (PVP) and combinations thereof.

131. (New) The method according to claim 126, wherein the structure of the fabrics are composed of long polymer fiber, and the member is composed of short chain polymer material.

132. (New) The method according to claim 126, wherein the first and third polymeric components comprise long polymer fiber which is ultra high molecular weight polyethylene (UHMWPE) fiber.

133. (New) The method according to claim 126, wherein the fabric has high tensile strength and high wear resistance.

134. (New) The method according to claim 125, wherein the second polymeric component comprises short chain polymer material which is branched.

135. (New) The method according to claim 126, wherein the member is a film which is between 0.001 and 5 mm thick.

136. (New) The method according to claim 126, wherein the member is a core which is between 0.1 and 30 mm thick.

137. (New) The method according to claim 125, wherein the heating is at a temperature of between 80 and 250 degrees Celsius.

138. (New) The method according to claim 125, wherein the vacuum is below 800 mbar.

139. (New) The method according to claim 125, wherein the shaped product is treated by radiation, to further crosslink the polymers and thereby improving the strength of the product.

140. (New) The method according to claim 125, wherein the shaped product is further subjected to annealing.

141. (New) The method according to claim 140, wherein the annealed polymeric product is subjected to surface coating, where the product is coated by polyvinylpyrrolidone (PVP) by plasma polymerization.

142. (New) The method according to claim 125, wherein the thickness of the polymeric product is between 0.001 and 40 cm thick.